



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> :  C12N 9/14, A61K 38/46 // A61P 29/00, 37/08	A1	(11) International Publication Number: <b>WO 00/50577</b>  (43) International Publication Date: 31 August 2000 (31.08.00)
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(21) International Application Number: PCT/SE00/00384

(22) International Filing Date: 28 February 2000 (28.02.00)

## (30) Priority Data:

9900722-1	26 February 1999 (26.02.99)	SE
60/122,110	26 February 1999 (26.02.99)	US

(71)(72) Applicants and Inventors: HAEGGSTRÖM, Jesper, Z. [SE/SE]; Valhallavägen 145, S-115 31 Stockholm (SE). NORDLUND, Pär [SE/SE]; Gruvbacken 2, S-116 34 Stockholm (SE). THUNISSEN, Marjolein [NL/SE]; Svinningevägen 26, S-184 92 Åkersberga (SE).

(74) Agents: BERG, S., A. et al.; Albihns Patentbyrå Stockholm AB, P.O. Box 5581, S-114 85 Stockholm (SE).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published***With international search report.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*(54) Title: DRUG DESIGN BASED ON THE STRUCTURE OF LTA<sub>4</sub> HYDROLASE

## (57) Abstract

The present invention relates to an isolated leukotriene A<sub>4</sub> (LTA<sub>4</sub>) hydrolase, which LTA<sub>4</sub> hydrolase is present in its naturally occurring three dimensional form. It is the first three-dimensional structure of any protein component of the leukotriene cascade and enables a description of the structural basis and molecular mechanisms for the two catalytic activities of LTA<sub>4</sub> hydrolase. Further, the invention also relates to LTA<sub>4</sub> hydrolase complexed with an inhibitor. The structural information provided by the present invention will make possible rational design of enzyme inhibitors, which may be developed into clinically useful anti-inflammatory drugs.